



SEQUENCE LISTING

<110> Gonsalves, Dennis
Meng, Baozhong

<120> RUPESTRIS STEM PITTING ASSOCIATED VIRUS
NUCLEIC ACIDS, PROTEINS, AND THEIR USES

<130> 07678/035004

<150> 60/047,147

<151> 1997-05-20

<150> 60/069,902

<151> 1997-12-17

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<151> 1998-05-19

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<212> DNA

<213> Rupestris stem pitting associated virus

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<212> DNA

<213> Rupestris stem pitting associated virus

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 Asp Arg Ser Lys Glu Arg Leu Ile Ser Ser Gly Ile Tyr Leu Ser Pro
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 Tyr Ser Phe Arg Pro His Ser His Pro Val Cys Lys Thr Leu Glu Asn
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 His Ile Leu Tyr Asn Val Leu Pro Ser Tyr Val Asn Asn Ser Phe Tyr
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 Phe Val Gly Ile Lys Asp Phe Lys Leu Gln Phe Leu Lys Arg Arg Asn
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Leu Ile Gly Ser Ala Thr Phe Thr Ile Ser Lys Ser Arg Asn Leu Val
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 Ala Phe Ala Gly Asp Asp Met Cys Ala Asn Arg Arg Leu Arg Leu Lys

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| | 2085 | 2090 |
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| | 2115 | 2120 |
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|---|-----|
| atgaataatt tagttaaagc attgtcagca tttgagtttg taggtgtttt cagtgtgctt | 60 |
| aaatttccag tagtcattca tagtgtgcct ggtagtggtg aaagtagttt aataagggag | 120 |
| ctaatttccg aggatgagaa tttcatagct ttcacagcag gtgttccaga cagccctaat | 180 |
| ctcacaggaa ggtacattaa gccttattct ccagggtgtg cagtgccagg gaaagttaat | 240 |
| atacttgatg agtacttgtc cgtccaagat ttttcagggt ttgatgtgct gttctcggac | 300 |
| ccatacaaaa acatcagcat tcctaaagag gcacatttca tcaagtcaaa aactttagg | 360 |
| tttggcgtga atacttgcaa atatctttcc tccttcggtt ttaagggttag cagtgcggt | 420 |
| ttggacaaaag tcattgtggg gtcgcctttt aactagatg ttgaaggggt gctaatatgc | 480 |
| tttggttaagg aggcagtgga tctcgctgtt gcgcacaact ctgaattcaa attacctgt | 540 |
| gaagttagag gttcaacttt taacgtcgta actcttttga aatcaagaga tccaacccca | 600 |
| gaggataggc actggtttta cattgctgct acaagacaca gggagaaatt gataatcatg | 660 |
| cag | 663 |

<210> 5
 <211> 221
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 5

| | |
|---|----|
| Met Asn Asn Leu Val Lys Ala Leu Ser Ala Phe Glu Phe Val Gly Val | |
| 1 | 5 |
| Phe Ser Val Leu Lys Phe Pro Val Val Ile His Ser Val Pro Gly Ser | 10 |
| | 15 |
| | 20 |
| Gly Lys Ser Ser Leu Ile Arg Glu Leu Ile Ser Glu Asp Glu Asn Phe | 25 |
| | 30 |
| | 35 |
| Ile Ala Phe Thr Ala Gly Val Pro Asp Ser Pro Asn Leu Thr Gly Arg | 40 |
| | 45 |
| | 50 |
| | 55 |
| | 60 |

Tyr Ile Lys Pro Tyr Ser Pro Gly Cys Ala Val Pro Gly Lys Val Asn
 65 70 75 80
 Ile Leu Asp Glu Tyr Leu Ser Val Gln Asp Phe Ser Gly Phe Asp Val
 85 90 95
 Leu Phe Ser Asp Pro Tyr Gln Asn Ile Ser Ile Pro Lys Glu Ala His
 100 105 110
 Phe Ile Lys Ser Lys Thr Cys Arg Phe Gly Val Asn Thr Cys Lys Tyr
 115 120 125
 Leu Ser Ser Phe Gly Phe Lys Val Ser Ser Asp Gly Leu Asp Lys Val
 130 135 140
 Ile Val Gly Ser Pro Phe Thr Leu Asp Val Glu Gly Val Leu Ile Cys
 145 150 155 160
 Phe Gly Lys Glu Ala Val Asp Leu Ala Val Ala His Asn Ser Glu Phe
 165 170 175
 Lys Leu Pro Cys Glu Val Arg Gly Ser Thr Phe Asn Val Val Thr Leu
 180 185 190
 Leu Lys Ser Arg Asp Pro Thr Pro Glu Asp Arg His Trp Phe Tyr Ile
 195 200 205
 Ala Ala Thr Arg His Arg Glu Lys Leu Ile Ile Met Gln
 210 215 220

<210> 6
 <211> 351
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 6
 atgccttttc agcagcctgc gaattgggca aaaaccataa ctccattgac agttggcttg 60
 ggcattgggc ttgtgctgca ttttctgagg aagtcaaadc taccttattc aggggacaac 120
 atccatcaat tccctcacgg tgggcgttac agggacggta caaaaagtat aacttactgt 180
 ggtccaaaagc aatccttccc cagctctggg atattcggcc aatctgagaa ttttgtgccc 240
 ttaatgcttg tcataggtct aatcgcatc atacatgtat tgtctgttg gaattctggt 300
 cttggttagga attgtaattg ccatccaaat cttgtctcat gtagacagca g 351

<210> 7
 <211> 117
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 7
 Met Pro Phe Gln Gln Pro Ala Asn Trp Ala Lys Thr Ile Thr Pro Leu
 1 5 10 15
 Thr Val Gly Leu Gly Ile Gly Leu Val Leu His Phe Leu Arg Lys Ser
 20 25 30
 Asn Leu Pro Tyr Ser Gly Asp Asn Ile His Gln Phe Pro His Gly Gly
 35 40 45
 Arg Tyr Arg Asp Gly Thr Lys Ser Ile Thr Tyr Cys Gly Pro Lys Gln
 50 55 60
 Ser Phe Pro Ser Ser Gly Ile Phe Gly Gln Ser Glu Asn Phe Val Pro
 65 70 75 80
 Leu Met Leu Val Ile Gly Leu Ile Ala Phe Ile His Val Leu Ser Val

gttcaagtgc tcagacaagc tatggctgaa ggcaagcgga gttccaacct tggagagatt
 agtgggtggaa cggctggtgc actcatcaac aaccctttt caaatgttac acatgaa

720
 777

<210> 11
 <211> 259
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 11
 Met Ala Ser Gln Ile Gly Lys Leu Pro Gly Glu Ser Asn Glu Ala Phe
 1 5 10 15
 Glu Ala Arg Leu Lys Ser Leu Glu Leu Ala Arg Ala Gln Lys Gln Pro
 20 25 30
 Glu Gly Ser Asn Ala Pro Pro Thr Leu Ser Gly Ile Leu Ala Lys Arg
 35 40 45
 Lys Arg Ile Ile Glu Asn Ala Leu Ser Lys Thr Val Asp Met Arg Glu
 50 55 60
 Val Leu Lys His Glu Thr Val Val Ile Ser Pro Asn Val Met Asp Glu
 65 70 75 80
 Gly Ala Ile Asp Glu Leu Ile Arg Ala Phe Gly Glu Ser Gly Ile Ala
 85 90 95
 Glu Ser Val Gln Phe Asp Val Ala Ile Asp Ile Ala Arg His Cys Ser
 100 105 110
 Asp Val Gly Ser Ser Gln Ser Ser Thr Leu Ile Gly Lys Ser Pro Phe
 115 120 125
 Cys Asp Leu Asn Arg Ser Glu Ile Ala Gly Ile Ile Arg Glu Val Thr
 130 135 140
 Thr Leu Arg Arg Phe Cys Met Tyr Tyr Ala Lys Ile Val Trp Asn Ile
 145 150 155 160
 His Leu Glu Thr Gly Ile Pro Pro Ala Asn Trp Ala Lys Lys Gly Phe
 165 170 175
 Asn Glu Asn Glu Lys Phe Ala Ala Phe Asp Phe Phe Leu Gly Val Thr
 180 185 190
 Asp Glu Ser Ala Leu Glu Pro Lys Gly Gly Ile Lys Arg Ala Pro Thr
 195 200 205
 Lys Ala Glu Met Val Ala Asn Ile Ala Ser Phe Glu Val Gln Val Leu
 210 215 220
 Arg Gln Ala Met Ala Glu Gly Lys Arg Ser Ser Asn Leu Gly Glu Ile
 225 230 235 240
 Ser Gly Gly Thr Ala Gly Ala Leu Ile Asn Asn Pro Phe Ser Asn Val
 245 250 255
 Thr His Glu

<210> 12
 <211> 2680
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 12
 ggctgggcaa actttggcct gctttcaaca cgccgtcttg gttcgctttg caccctacat

60

| | | | | | | |
|-------------|------------|-------------|-------------|-------------|-------------|------|
| gcgatacatt | gaaaagaagc | ttgtgcaggc | attgaaacca | aattttctaca | ttcattcttg | 120 |
| caaaggctct | gatgagctaa | gtgaatgggt | tagagccaga | ggtttcacag | gtgtgtgtac | 180 |
| tgagtcagac | tatgaagctt | ttgatgcatc | ccaagatcat | ttcatcctgg | catttgaact | 240 |
| gcaaactcatg | agatttttag | gactgccaga | agatctgatt | ttagattatg | agttcatcaa | 300 |
| aattcatctt | gggtcaaagc | ttggctcttt | tgcaattatg | agattcacag | gtgaggcaag | 360 |
| caccttccta | ttcaatacta | tggccaacat | gctattcact | ttcctgaggt | atgagttgac | 420 |
| aggttctgaa | tcaattgcat | ttgctggaga | tgatatgtgt | gctaactcga | ggttaagact | 480 |
| caagactgag | cacgccggct | ttctaaacat | gatctgtctc | aaagctaagg | tgagtttgt | 540 |
| cacaaatccc | accttctgtg | gatggtgttt | gtttaaagag | ggaatcttta | aaaaaccca | 600 |
| gctcatttgg | gaaaggatct | gcattgctag | ggaaatgggt | aacttggaca | attgcattga | 660 |
| caattacgca | attgaggtgt | cttatgctta | cagacttggg | gaattgtcca | taggcgtgat | 720 |
| gactgaggag | gaagttgaag | cacattctaa | ctgcgtgcgt | ttcctgggtc | gcaataagca | 780 |
| caagatgagg | tgctcaattt | ctggtttgtt | tgaagtaatt | gtttaggcct | taagtgtttg | 840 |
| gcatggtgtg | agtattatga | ataacttagt | caaagctttg | tctgcttttg | aatttgttgg | 900 |
| tgtgttttgt | gtacttaaat | ttccagttgt | tgttcacagt | gttccaggta | gcggtaaaag | 960 |
| tagcctaata | agggagctca | tttctgaaga | cgaggctttt | gtggccttta | cagcaggtgt | 1020 |
| gccagacagt | ccaaatctga | cagggaggta | catcaagccc | tacgctccag | ggtgtgcagt | 1080 |
| gcaaggga | ataaacatac | ttgatgagta | cttgtctgtc | tctgatactt | ctggctttga | 1140 |
| tgtgctgttc | tcagaccctt | accagaatgt | cagcattcca | agggaggcac | acttcataaa | 1200 |
| aaccaaaacc | tgtaggtttg | gtaccaacac | ctgcaagtac | cttcaatctt | ttggctttta | 1260 |
| tgtttgtagt | gatgggggtg | ataaagttgt | tgtagggctg | ccatttgaac | tggaggttga | 1320 |
| gggggttctc | atttgccttg | gaaaggaggc | tgtagatcta | gcagttgcac | acaattctga | 1380 |
| cttcaagttg | ccctgcgagg | tgcggggttc | aacatttgac | gttgtaacgt | tattgaagtc | 1440 |
| cagggatcca | acttcagaag | ataagcattg | gttctacgtt | gcagccacaa | ggcatcgaag | 1500 |
| taaactgata | ataatgcagt | aaaatgcctt | ttcagcaacc | tgccaactgg | gctaagacca | 1560 |
| taactccatt | aactattggg | ttgggcattg | ggttggttct | gcacttctta | aggaaatcaa | 1620 |
| atctgccata | ttcaggagac | aatattcacc | agttcccaca | cggagggcat | tacagggacg | 1680 |
| gcacgaagag | tataacctat | tgtggcccta | ggcagtcatt | cccaagctca | ggaatattcg | 1740 |
| gtcagtcctga | aaatttcgta | cctctaatat | tggtcgtgac | tctggtcgct | tttatacatg | 1800 |
| cgttatctct | ttggaattct | ggtcctagta | ggagttgcaa | ttgccatcca | aatccttgca | 1860 |
| catgtagaca | gcagtagtgg | caaccatcaa | ggctgtttca | taagagccac | cggggagtc | 1920 |
| atagtaattg | agaattgtgg | gccgagcgag | gccctagctg | ctacagtcaa | agaggtgttg | 1980 |
| ggcgggtctaa | aggcttttag | ggtttagccaa | aaggttgatg | aaattaatta | cagttgttga | 2040 |
| gacagttgaa | tggcaagtca | agttggaaaa | ttgcctggcg | aatcaaatga | agcatatgag | 2100 |
| gctagactca | aggcttttag | gttagcaagg | gccccaaaaag | ctccagaagt | ctccaaccaa | 2160 |
| cctcccacac | ttggaggcat | tctagccaaa | aggaaaagag | tgattgagaa | tgcaactctca | 2220 |
| aagacagtgg | atatgcgtga | agtcttaagg | catgaatctg | ttgtactctc | cccgaatgta | 2280 |
| atggacgagg | gagcaataga | cgagctgatt | cgtgcctttg | gggagtcggg | catagctgaa | 2340 |
| aatgtgcagt | ttgatgttgc | aatagacatt | gctcgccact | gttctgatgt | ggggagctct | 2400 |
| cagaggtcaa | cccttattgg | taaaagcccc | ttctgtgagt | taaataggtc | tgaaattgcc | 2460 |
| ggaataataa | gggaggtgac | cacgctgcgc | agattttgca | tgtactacgc | aaagattgtg | 2520 |
| tggaaacatcc | atgttgagac | gggaatacca | ccagctaatt | gggccaagaa | aggattta | 2580 |
| gagaatgaaa | agtttgcagc | ctttgacttc | ttccttggag | tcacagatga | aagcgcgctt | 2640 |
| gagcctaagg | gtggagtcaa | gagagctcca | acaaaagcag | | | 2680 |

<210> 13

<211> 767

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 13

| | | | | | | |
|------------|------------|------------|------------|-------------|------------|-----|
| atgcgataca | ttgaaaagaa | gcttgtgcag | gcattgaaac | caaatttcta | cattcattct | 60 |
| ggcaaaggtc | ttgatgagct | aagtgaatgg | gttagagcca | gaggtttcac | aggtgtgtgt | 120 |
| actgagtcag | actatgaagc | ttttgatgca | tccaagatc | atttcaccc | ggcatttgaa | 180 |
| ctgcaaata | tgagattttt | aggactgcc | gaagatctga | ttttagatta | tgagttcatc | 240 |
| aaaattcatc | ttgggtcaaa | gcttggctct | tttgcaatta | tgagattcac | aggtgaggca | 300 |
| agcaccttcc | tattcaatac | tatggccaac | atgctattca | ctttcctgag | gtatgagttg | 360 |
| acaggttctg | aatcaattgc | atttgctgga | gatgatgtgt | gtgctaatac | caggttaaga | 420 |
| ctcaagactg | agcacgccgg | ctttctaaac | atgatctgtc | tcaaagctaa | ggtgcagttt | 480 |
| gtcacaaatc | ccaccttctg | tggatggtgt | ttgtttaaag | agggaaatctt | taaaaaaccc | 540 |
| cagctcattt | gggaaaggat | ctgcattgct | agggaaatgg | gtaacttgga | caattgcatt | 600 |
| gacaattacg | caattgaggt | gtcttatgct | tacagacttg | gggaattgtc | cataggcgtg | 660 |
| atgactgagg | aggaagttga | agcacattct | aactgcgtgc | gtttcctggt | tcgcaataag | 720 |
| cacaagatga | ggtgctcaat | ttctggtttg | tttgaagtaa | ttgttta | | 767 |

<210> 14

<211> 255

<212> PRT

<213> Rupestris stem pitting associated virus

<400> 14

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Tyr | Ile | Glu | Lys | Lys | Leu | Val | Gln | Ala | Leu | Lys | Pro | Asn | Phe |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Tyr | Ile | His | Ser | Gly | Lys | Gly | Leu | Asp | Glu | Leu | Ser | Glu | Trp | Val | Arg |
| | | | 20 | | | | 25 | | | | | 30 | | | |
| Ala | Arg | Gly | Phe | Thr | Gly | Val | Cys | Thr | Glu | Ser | Asp | Tyr | Glu | Ala | Phe |
| | | 35 | | | | 40 | | | | | 45 | | | | |
| Asp | Ala | Ser | Gln | Asp | His | Phe | Ile | Leu | Ala | Phe | Glu | Leu | Gln | Ile | Met |
| | 50 | | | | 55 | | | | | 60 | | | | | |
| Arg | Phe | Leu | Gly | Leu | Pro | Glu | Asp | Leu | Ile | Leu | Asp | Tyr | Glu | Phe | Ile |
| 65 | | | | 70 | | | | 75 | | | | | | 80 | |
| Lys | Ile | His | Leu | Gly | Ser | Lys | Leu | Gly | Ser | Phe | Ala | Ile | Met | Arg | Phe |
| | | | 85 | | | | 90 | | | | | | 95 | | |
| Thr | Gly | Glu | Ala | Ser | Thr | Phe | Leu | Phe | Asn | Thr | Met | Ala | Asn | Met | Leu |
| | | 100 | | | | | 105 | | | | | | 110 | | |
| Phe | Thr | Phe | Leu | Arg | Tyr | Glu | Leu | Thr | Gly | Ser | Glu | Ser | Ile | Ala | Phe |
| | | 115 | | | | 120 | | | | | 125 | | | | |
| Ala | Gly | Asp | Asp | Met | Cys | Ala | Asn | Arg | Arg | Leu | Arg | Leu | Lys | Thr | Glu |
| | 130 | | | | 135 | | | | | 140 | | | | | |
| His | Ala | Gly | Phe | Leu | Asn | Met | Ile | Cys | Leu | Lys | Ala | Lys | Val | Gln | Phe |
| 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| Val | Thr | Asn | Pro | Thr | Phe | Cys | Gly | Trp | Cys | Leu | Phe | Lys | Glu | Gly | Ile |
| | | | 165 | | | | 170 | | | | | | 175 | | |
| Phe | Lys | Lys | Pro | Gln | Leu | Ile | Trp | Glu | Arg | Ile | Cys | Ile | Ala | Arg | Glu |
| | | 180 | | | | | 185 | | | | | 190 | | | |
| Met | Gly | Asn | Leu | Asp | Asn | Cys | Ile | Asp | Asn | Tyr | Ala | Ile | Glu | Val | Ser |
| | 195 | | | | 200 | | | | | 205 | | | | | |
| Tyr | Ala | Tyr | Arg | Leu | Gly | Glu | Leu | Ser | Ile | Gly | Val | Met | Thr | Glu | Glu |
| | 210 | | | | 215 | | | | | 220 | | | | | |
| Glu | Val | Glu | Ala | His | Ser | Asn | Cys | Val | Arg | Phe | Leu | Val | Arg | Asn | Lys |
| 225 | | | | 230 | | | | | 235 | | | | | 240 | |
| His | Lys | Met | Arg | Cys | Ser | Ile | Ser | Gly | Leu | Phe | Glu | Val | Ile | Val | |

<210> 15
 <211> 666
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 15
 atgaataact tagtcaaagc tttgtctgct tttgaatttg ttggtgtgtt ttgtgtactt 60
 aaattttccag ttgttggttca cagtgttcca ggtagcggta aaagtagcct aataagggag 120
 ctcattttctg aagacgaggc ttttgtggcc tttacagcag gtgtgccaga cagtccaaat 180
 ctgacaggga ggtacatcaa gccctacgct ccagggtgtg cagtgcaagg gaaaataaac 240
 atacttgatg agtacttgtc tgtctctgat acttctggct ttgatgtgct gttctcagac 300
 ccttaccaga atgtcagcat tccaagggag gcacacttca taaaaaccaa aacctgtagg 360
 tttggtacca acacctgcaa gtaccttcaa tcttttggct ttaatgtttg tagtgatggg 420
 gtggataaag ttgttgtagg gtcgccattt gaactggagg ttgagggggg tctcatttgc 480
 tttggaaagg aggctgtaga tctagcagtt gcacacaatt ctgacttcaa gttgccctgc 540
 gaggtgcggg gttcaacatt tgacgttgta acgttattga agtccaggga tccaacttca 600
 gaagataagc attggttcta cgttgcagcc acaaggcatc gaagtaaact gataataatg 660
 cagtaa 666

<210> 16
 <211> 221
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 16
 Met Asn Asn Leu Val Lys Ala Leu Ser Ala Phe Glu Phe Val Gly Val
 1 5 10 15
 Phe Cys Val Leu Lys Phe Pro Val Val Val His Ser Val Pro Gly Ser
 20 25 30
 Gly Lys Ser Ser Leu Ile Arg Glu Leu Ile Ser Glu Asp Glu Ala Phe
 35 40 45
 Val Ala Phe Thr Ala Gly Val Pro Asp Ser Pro Asn Leu Thr Gly Arg
 50 55 60
 Tyr Ile Lys Pro Tyr Ala Pro Gly Cys Ala Val Gln Gly Lys Ile Asn
 65 70 75 80
 Ile Leu Asp Glu Tyr Leu Ser Val Ser Asp Thr Ser Gly Phe Asp Val
 85 90 95
 Leu Phe Ser Asp Pro Tyr Gln Asn Val Ser Ile Pro Arg Glu Ala His
 100 105 110
 Phe Ile Lys Thr Lys Thr Cys Arg Phe Gly Thr Asn Thr Cys Lys Tyr
 115 120 125
 Leu Gln Ser Phe Gly Phe Asn Val Cys Ser Asp Gly Val Asp Lys Val
 130 135 140
 Val Val Gly Ser Pro Phe Glu Leu Glu Val Glu Gly Val Leu Ile Cys
 145 150 155 160
 Phe Gly Lys Glu Ala Val Asp Leu Ala Val Ala His Asn Ser Asp Phe
 165 170 175
 Lys Leu Pro Cys Glu Val Arg Gly Ser Thr Phe Asp Val Val Thr Leu
 180 185 190

Leu Lys Ser Arg Asp Pro Thr Ser Glu Asp Lys His Trp Phe Tyr Val
 195 200 205
 Ala Ala Thr Arg His Arg Ser Lys Leu Ile Ile Met Gln
 210 215 220

<210> 17
 <211> 354
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 17
 atgccttttc agcaacctgc caactgggct aagaccataa ctccattaac tattggtttg 60
 ggcattgggt tggttctgca cttcttaagg aaatcaaadc tgccatattc aggagacaat 120
 attcaccagt tcccacacgg agggcattac agggacggca cgaagagtat aacctattgt 180
 ggccctaggc agtcattccc aagctcagga atattcggtc agtctgaaaa tttcgtacct 240
 ctaatattgg tctgtactct ggctcgctttt atacatgcgt tatctctttg gaattctggg 300
 cctagtagga gttgcaattg ccatccaaat ccttgacat gtagacagca gtag 354

<210> 18
 <211> 117
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 18
 Met Pro Phe Gln Gln Pro Ala Asn Trp Ala Lys Thr Ile Thr Pro Leu
 1 5 10 15
 Thr Ile Gly Leu Gly Ile Gly Leu Val Leu His Phe Leu Arg Lys Ser
 20 25 30
 Asn Leu Pro Tyr Ser Gly Asp Asn Ile His Gln Phe Pro His Gly Gly
 35 40 45
 His Tyr Arg Asp Gly Thr Lys Ser Ile Thr Tyr Cys Gly Pro Arg Gln
 50 55 60
 Ser Phe Pro Ser Ser Gly Ile Phe Gly Gln Ser Glu Asn Phe Val Pro
 65 70 75 80
 Leu Ile Leu Val Val Thr Leu Val Ala Phe Ile His Ala Leu Ser Leu
 85 90 95
 Trp Asn Ser Gly Pro Ser Arg Ser Cys Asn Cys His Pro Asn Pro Cys
 100 105 110
 Thr Cys Arg Gln Gln
 115

<210> 19
 <211> 243
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 19
 atgcgttatc tctttggaat tctggctcta gtaggagttg caattgccat ccaaadcctt 60
 gcacatgtag acagcagtag tggcaacat caaggctgtt tcataagagc caccggggag 120
 tcaatagtaa ttgagaattg tgggccgagc gaggccctag ctgctacagt caaagaggtg 180
 ttgggcggtc taaaggcttt agggggttagc caaagggtg atgaaattaa ttacagttgt 240

tga

243

<210> 20
<211> 80
<212> PRT
<213> Rupestris stem pitting associated virus

<400> 20
Met Arg Tyr Leu Phe Gly Ile Leu Val Leu Val Gly Val Ala Ile Ala
1 5 10 15
Ile Gln Ile Leu Ala His Val Asp Ser Ser Ser Gly Asn His Gln Gly
20 25 30
Cys Phe Ile Arg Ala Thr Gly Glu Ser Ile Val Ile Glu Asn Cys Gly
35 40 45
Pro Ser Glu Ala Leu Ala Ala Thr Val Lys Glu Val Leu Gly Gly Leu
50 55 60
Lys Ala Leu Gly Val Ser Gln Lys Val Asp Glu Ile Asn Tyr Ser Cys
65 70 75 80

<210> 21
<211> 631
<212> DNA
<213> Rupestris stem pitting associated virus

<400> 21
atggcaagtc aagttggaaa attgcctggc gaatcaaatg aagcatatga ggctagactc 60
aaggcttttag agtttagcaag ggcccaaaaa gctccagaag tctccaacca acctcccaca 120
cttggaggca ttctagccaa aaggaaaaga gtgattgaga atgcactctc aaagacagtg 180
gatatgcgtg aagtcttaag gcatgaatct gttgtactct ccccgaaatgt aatggacgag 240
ggagcaatag acgagctgat tcgtgccttt ggggagtcgg gcatagctga aaatgtgcag 300
tttgatgttg caatagacat tgctcgccac tgttctgatg tggggagctc tcagaggtca 360
acccttattg gtaaaagccc cttctgtgag ttaaataagg ctgaaattgc cggaataata 420
agggagggtga ccacgctgcg cagattttgc atgtactacg caaagattgt gtggaacatc 480
catttgagaga cgggaataacc accagctaata tgggccaaga aaggatttaa tgagaatgaa 540
aagtttgtag cctttgactt cttccttgga gtcacagatg aaagcgcgct tgagcctaag 600
ggtggagtca agagagctcc aacaaaagca g 631

<210> 22
<211> 210
<212> PRT
<213> Rupestris stem pitting associated virus

<400> 22
Met Ala Ser Gln Val Gly Lys Leu Pro Gly Glu Ser Asn Glu Ala Tyr
1 5 10 15
Glu Ala Arg Leu Lys Ala Leu Glu Leu Ala Arg Ala Gln Lys Ala Pro
20 25 30
Glu Val Ser Asn Gln Pro Pro Thr Leu Gly Gly Ile Leu Ala Lys Arg
35 40 45
Lys Arg Val Ile Glu Asn Ala Leu Ser Lys Thr Val Asp Met Arg Glu
50 55 60

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Arg | His | Glu | Ser | Val | Val | Leu | Ser | Pro | Asn | Val | Met | Asp | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Ala | Ile | Asp | Glu | Leu | Ile | Arg | Ala | Phe | Gly | Glu | Ser | Gly | Ile | Ala |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Glu | Asn | Val | Gln | Phe | Asp | Val | Ala | Ile | Asp | Ile | Ala | Arg | His | Cys | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asp | Val | Gly | Ser | Ser | Gln | Arg | Ser | Thr | Leu | Ile | Gly | Lys | Ser | Pro | Phe |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Cys | Glu | Leu | Asn | Arg | Ser | Glu | Ile | Ala | Gly | Ile | Ile | Arg | Glu | Val | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Thr | Leu | Arg | Arg | Phe | Cys | Met | Tyr | Tyr | Ala | Lys | Ile | Val | Trp | Asn | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| His | Leu | Glu | Thr | Gly | Ile | Pro | Pro | Ala | Asn | Trp | Ala | Lys | Lys | Gly | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asn | Glu | Asn | Glu | Lys | Phe | Ala | Ala | Phe | Asp | Phe | Phe | Leu | Gly | Val | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asp | Glu | Ser | Ala | Leu | Glu | Pro | Lys | Gly | Gly | Val | Lys | Arg | Ala | Pro | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Ala | | | | | | | | | | | | | | |
| | 210 | | | | | | | | | | | | | | |

<210> 23
 <211> 2009
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 23

| | | | | | | |
|-------------|-------------|------------|-------------|------------|------------|------|
| gaagctagca | catttctggt | caacactatg | gctaacatgt | tgttcacttt | tctgagatat | 60 |
| gaactgacgg | gttcagagtc | aatagcattt | gcaggggatg | atatgtgtgc | taatagaagg | 120 |
| ttgcggccta | aaacggagca | tgagggtttt | ctgaacatga | tctgccttaa | ggccaagggt | 180 |
| cagtttggtt | ccaacccac | attctgtgga | tgggtgcttat | ttaaggaggg | aatcttcaag | 240 |
| aaacctcaac | taatttggga | gcgaatatgc | atagccagag | agatgggcaa | tctggagaac | 300 |
| tgtattgaca | attatgcgat | agaagtgtcc | tatgcatata | gattgggtga | gctatcaatt | 360 |
| gaaatgatga | cagaagaaga | agtggaggca | cactacaatt | gtgtgaggtt | cctggttagg | 420 |
| aacaagcata | agatgaggtg | ctcaatttca | ggcctgtttg | aagtggttga | ttaggcctta | 480 |
| agtatttggc | gttggttcgag | ttattatgaa | taatttagtt | aaagcattat | cagccttcga | 540 |
| gtttatagggt | gttttcaatg | tgctcaaatt | tccagttggt | atacatagt | tgcttggtag | 600 |
| tggttaacagt | agcttaataa | gggaattaat | ctcagaggac | gagagtctcg | tggctttcac | 660 |
| agcagggtgtt | ccagacagtc | ctaacctcac | agggaggtac | atcaagcctt | actcaccagg | 720 |
| atgcgcagtg | caaggaaaag | tgaatatact | tgatgagtag | ttgtccgttc | aagacatttc | 780 |
| gggttttgat | gtactgtttt | cagaccgcta | ccagaatatc | agtattcccc | aagaggcgca | 840 |
| tttcattaag | tccaagactt | gtaggtttgg | tgtgaacact | tgcaaatacc | tttctctttt | 900 |
| cggtttcgaa | gttagcagcg | acgggctgga | cgacgtcatt | gtgggatcgc | ccttcactct | 960 |
| agatgttgaa | ggggtgctga | tatgttttgg | caaggaggcg | gtagatctcg | ctgttgcgca | 1020 |
| caactctgaa | ttcaagttgc | cgtgtgaggt | tcgaggttca | accttcaatg | tggtaacctt | 1080 |
| tttgaaatca | agagacccaa | ccccagagga | caggcactgg | ttttacatcg | ctgccacaag | 1140 |
| acataggaag | aaattgggtca | ttatgcagta | aaatgccttt | tcagcagcct | gctaattggg | 1200 |
| caaaaaccat | aactccattg | actattggct | taggaattgg | acttgtgctg | cattttctga | 1260 |
| gaaagtcaaa | tctaccatat | tcaggagaca | acatccatca | atttcctcac | ggggggcggt | 1320 |
| accgggacgg | cacaaaaagt | ataacttact | gtggccctaa | gcagtccttc | cccagttcag | 1380 |
| gaatatttgg | tcagttctgag | aattttgtgc | ccttaatgct | tgtcataggt | ctaattgcat | 1440 |

| | |
|---|------|
| tcatacatgt attgtctggt tgggaattctg gtcttggttag gaattgcaat tgccatccaa | 1500 |
| atccttgctc atgtagacaa cagtagtggc agtcaccaag gttgctttat cagggccact | 1560 |
| ggagagtcta ttttgattga aaattgtggc ccaagcgagg cccttgcac aacagtgagg | 1620 |
| gaggtgttgg ggggtttgaa ggcttttagga attagccata ctactgaaga aattgattat | 1680 |
| cgttggttaa ttggttaaat ggcgagtcaa gttggttaagc tccccggaga atcaaatgag | 1740 |
| gcatttgaag cccggctgaa atcactggag ttggctagag ctcaaaagca gccagaaggt | 1800 |
| tcaaacacac cgcctactct cagtgggtgtg cttgccaaac gtaagagggt tattgagaat | 1860 |
| gcactctcaa agacagtgga catgagggag gtgttgaaac acgaaacggt tgtaatttcc | 1920 |
| ccaaatgtca tggatgaggg tgcaatagat gaactgattc gtgcattcgg agaatcaggc | 1980 |
| atagctgaga gcgcacaatt tgatgtggc | 2009 |

<210> 24

<211> 447

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 24

| | |
|--|-----|
| gaagctagca catttctggt caacactatg gctaacatgt tgttcacttt tctgagatat | 60 |
| gaactgacgg gttcagagtc aatagcattt gcaggggatg atatgtgtgc taatagaagg | 120 |
| ttgcggctta aaacggagca tgagggtttt ctgaacatga tctgccttaa ggccaaggtt | 180 |
| cagtttgttt ccaacccac attctgtgga tgggtgcttat ttaaggaggg aatcttcaag | 240 |
| aaacctcaac taatttggga gcgaatatgc atagccagag agatgggcaa tctggagaac | 300 |
| tgtattgaca attatgcat agaagtgtcc tatgcatata gattgggtga gctatcaatt | 360 |
| gaaatgatga cagaagaaga agtggaggca cactacaatt gtgtgaggtt cctgggttagg | 420 |
| aacaagcata agatgaggtg ctcaatt | 447 |

<210> 25

<211> 149

<212> PRT

<213> Rupestris stem pitting associated virus

<400> 25

| | |
|---|--|
| Glu Ala Ser Thr Phe Leu Phe Asn Thr Met Ala Asn Met Leu Phe Thr | |
| 1 5 10 15 | |
| Phe Leu Arg Tyr Glu Leu Thr Gly Ser Glu Ser Ile Ala Phe Ala Gly | |
| 20 25 30 | |
| Asp Asp Met Cys Ala Asn Arg Arg Leu Arg Leu Lys Thr Glu His Glu | |
| 35 40 45 | |
| Gly Phe Leu Asn Met Ile Cys Leu Lys Ala Lys Val Gln Phe Val Ser | |
| 50 55 60 | |
| Asn Pro Thr Phe Cys Gly Trp Cys Leu Phe Lys Glu Gly Ile Phe Lys | |
| 65 70 75 80 | |
| Lys Pro Gln Leu Ile Trp Glu Arg Ile Cys Ile Ala Arg Glu Met Gly | |
| 85 90 95 | |
| Asn Leu Glu Asn Cys Ile Asp Asn Tyr Ala Ile Glu Val Ser Tyr Ala | |
| 100 105 110 | |
| Tyr Arg Leu Gly Glu Leu Ser Ile Glu Met Met Thr Glu Glu Glu Val | |
| 115 120 125 | |
| Glu Ala His Tyr Asn Cys Val Arg Phe Leu Val Arg Asn Lys His Lys | |
| 130 135 140 | |
| Met Arg Cys Ser Ile | |

145

<210> 26
 <211> 666
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 26
 atgaataatt tagttaaagc attatcagcc ttcgagttta taggtgtttt caatgtgctc 60
 aaatttccag ttgttataca tagtgtgcct ggtagtggtta agagtagctt aataagggaa 120
 ttaatctcag aggacgagag ttctgtggtt ttcacagcag gtgttccaga cagtcctaac 180
 ctcacagggg ggtacatcaa gccttactca ccaggatgcg cagtgcgaagg aaaagtgaat 240
 atacttgatg agtacttgtc cgttcaagac atttcgggtt ttgatgtact gttttcagac 300
 ccgtaccaga atatcagtat tcccccaagag gcgcatttca ttaagtccaa gacttgtagg 360
 tttggtgtga acacttgcaa atacctttcc tctttcgggt tcgaaggttag cagcgacggg 420
 ctggacgacg tcattgtggg atcgcccttc actctagatg ttgaaggggt gctgatatgt 480
 tttggcaagg aggcggtaga tctcgctggt gcgcacaact ctgaattcaa gttgccgtgt 540
 gaggttcgag gttcaacctt caatgtggta acccttttga aatcaagaga cccaacccca 600
 gaggacaggc actggtttta catcgctgcc acaagacata ggaagaaatt ggtcattatg 660
 cagtaa 666

<210> 27
 <211> 221
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 27
 Met Asn Asn Leu Val Lys Ala Leu Ser Ala Phe Glu Phe Ile Gly Val
 1 5 10 15
 Phe Asn Val Leu Lys Phe Pro Val Val Ile His Ser Val Pro Gly Ser
 20 25 30
 Gly Lys Ser Ser Leu Ile Arg Glu Leu Ile Ser Glu Asp Glu Ser Phe
 35 40 45
 Val Ala Phe Thr Ala Gly Val Pro Asp Ser Pro Asn Leu Thr Gly Arg
 50 55 60
 Tyr Ile Lys Pro Tyr Ser Pro Gly Cys Ala Val Gln Gly Lys Val Asn
 65 70 75 80
 Ile Leu Asp Glu Tyr Leu Ser Val Gln Asp Ile Ser Gly Phe Asp Val
 85 90 95
 Leu Phe Ser Asp Pro Tyr Gln Asn Ile Ser Ile Pro Gln Glu Ala His
 100 105 110
 Phe Ile Lys Ser Lys Thr Cys Arg Phe Gly Val Asn Thr Cys Lys Tyr
 115 120 125
 Leu Ser Ser Phe Gly Phe Glu Val Ser Ser Asp Gly Leu Asp Asp Val
 130 135 140
 Ile Val Gly Ser Pro Phe Thr Leu Asp Val Glu Gly Val Leu Ile Cys
 145 150 155 160
 Phe Gly Lys Glu Ala Val Asp Leu Ala Val Ala His Asn Ser Glu Phe
 165 170 175
 Lys Leu Pro Cys Glu Val Arg Gly Ser Thr Phe Asn Val Val Thr Leu
 180 185 190

Leu Lys Ser Arg Asp Pro Thr Pro Glu Asp Arg His Trp Phe Tyr Ile
 195 200 205
 Ala Ala Thr Arg His Arg Lys Lys Leu Val Ile Met Gln
 210 215 220

<210> 28
 <211> 354
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 28
 atgccttttc agcagcctgc taattgggca aaaaccataa ctccattgac tattggctta 60
 ggaattggac ttgtgctgca ttttctgaga aagtcaaadc taccatattc aggagacaac 120
 atccatcaat ttcttcacgg ggggcgttac cgggacggca caaaaagtat aacttactgt 180
 ggccctaagc agtccttccc cagttcagga atatttggtc agtctgagaa ttttgtgccc 240
 ttaatgcttg tcataggtct aattgcattc atacatgtat tgtctgtttg gaattctggt 300
 cttggtagga attgcaattg ccatccaaat ccttgctcat gtagacaaca gtag 354

<210> 29
 <211> 116
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 29
 Met Pro Phe Gln Gln Pro Ala Asn Trp Ala Lys Thr Ile Thr Pro Leu
 1 5 10 15
 Thr Ile Gly Leu Gly Ile Gly Leu Val Leu His Phe Leu Arg Lys Ser
 20 25 30
 Asn Leu Pro Tyr Ser Gly Asp Asn Ile His Gln Phe Pro His Gly Gly
 35 40 45
 Arg Tyr Arg Asp Gly Thr Lys Ile Thr Tyr Cys Gly Pro Lys Gln Ser
 50 55 60
 Phe Pro Ser Ser Gly Ile Phe Gly Gln Ser Glu Asn Phe Val Pro Leu
 65 70 75 80
 Met Leu Val Ile Gly Leu Ile Ala Phe Ile His Val Leu Ser Val Trp
 85 90 95
 Asn Ser Gly Leu Gly Arg Asn Cys Asn Cys His Pro Asn Pro Cys Ser
 100 105 110
 Cys Arg Gln Gln
 115

<210> 30
 <211> 243
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 30
 atgtattgtc tgtttggaat tctggctctg gtaggaattg caattgccat ccaaatecctt 60
 gctcatgtag acaacagtag tggcagtcac caagggttgc ttatcagggc cactggagag 120
 tctattttga ttgaaaattg tggcccaagc gaggccttg catcaacagt gagggaggtg 180
 ttgggggggt tgaaggcttt aggaattagc catactactg aagaaattga ttatcgttgt 240

taa

243

<210> 31
 <211> 80
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 31
 Met Tyr Cys Leu Phe Gly Ile Leu Val Leu Val Gly Ile Ala Ile Ala
 1 5 10 15
 Ile Gln Ile Leu Ala His Val Asp Asn Ser Ser Gly Ser His Gln Gly
 20 25 30
 Cys Phe Ile Arg Ala Thr Gly Glu Ser Ile Leu Ile Glu Asn Cys Gly
 35 40 45
 Pro Ser Glu Ala Leu Ala Ser Thr Val Arg Glu Val Leu Gly Gly Leu
 50 55 60
 Lys Ala Leu Gly Ile Ser His Thr Thr Glu Glu Ile Asp Tyr Arg Cys
 65 70 75 80

<210> 32
 <211> 311
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 32
 atggcgagtc aagttggtaa gctccccgga gaatcaaag aggcatttga agccccgctg 60
 aaatcactgg agttggctag agctcaaaag cagccagaag gttcaaacac accgcctact 120
 ctcagtgggtg tgcttgccaa acgtaagagg gttattgaga atgcactctc aaagacagtg 180
 gacatgaggg aggtgttgaa acacgaaacg gttgtaattt ccccaaagtgt catggatgag 240
 ggtgcaatag atgaactgat tcgtgcattc ggagaatcag gcatagctga gagcgcaaa 300
 tttgatgtgg c 311

<210> 33
 <211> 103
 <212> PRT
 <213> Rupestris stem pitting associated virus

<400> 33
 Met Ala Ser Gln Val Gly Lys Leu Pro Gly Glu Ser Asn Glu Ala Phe
 1 5 10 15
 Glu Ala Arg Leu Lys Ser Leu Glu Leu Ala Arg Ala Gln Lys Gln Pro
 20 25 30
 Glu Gly Ser Asn Thr Pro Pro Thr Leu Ser Gly Val Leu Ala Lys Arg
 35 40 45
 Lys Arg Val Ile Glu Asn Ala Leu Ser Lys Thr Val Asp Met Arg Glu
 50 55 60
 Val Leu Lys His Glu Thr Val Val Ile Ser Pro Asn Val Met Asp Glu
 65 70 75 80
 Gly Ala Ile Asp Glu Leu Ile Arg Ala Phe Gly Glu Ser Gly Ile Ala
 85 90 95
 Glu Ser Ala Gln Phe Asp Val

<210> 34
 <211> 1206
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 34
 gcaggattga aggctggcca ctgtgtgatt tttgatgagg tccagttggt tcctcctgga 60
 tacatcgatc tatgcttgct tattatacgt agtgatgctt tcatttcact tgccgggtgat 120
 ccatgtcaaa gcacatatga ttgcgaaaag gatcgggcaa ttttgggcgc tgagcagagt 180
 gacatactta gaatgcttga gggcaaaacg tatagggtata acatagaaaag caggagggttt 240
 gtgaacccaa tggtcgaatc aagactgccca tgtcacttca aaaaggggttc gatgactgcc 300
 gctttcgctg attatgcaat cttccataat atgcatgact ttctcctggc gaggtcaaaa 360
 ggtccttttg atgccgtttt ggtttccagt tttgaggaga aaaagatagt ccagtcctac 420
 tttggaatga aacagctcac actcacattt ggtgaatcaa ctgggttgaa tttcaaaaat 480
 gggggaattc tcatatcaca tgattccttt cacacagatg atcggccggg ggcttactgc 540
 tttatctcgc ttcagccaca atttggtatt ggtgaacatt acagggtctga ggggtggaaag 600
 tttcctctcg cactttgctg gcaaaccctt ctaccatttt ttaacagcca aaagtgggga 660
 gaatgtcata cgagatttgc tcccagggtga gcctaacttc ttcagtggct ttaacgtag 720
 cattggaaag aatgaagggt ttagggagga gaagttatgt ggtgacctat gggtaaaagt 780
 catgcttttc ctgggtcaag atgaggattg tgaagttgaa gagatggagt cagagtgtc 840
 aaatgaagaa tgggttaaaa cccacattcc cctgagtaat ctggagtcaa ccagggtcag 900
 gtgggtgggt aaaatggctt tgaaagagta tcgggagggt cgttgtggtt atgaaatgac 960
 tcaacaattc tttgatgagc ataggggttg aactgggtgag caactgagca atgcatgtga 1020
 gaggtttgaa agcattttacc caaggcataa aggaaatgat tcaataacct tccttatggc 1080
 tgtccgaaag cgtctcaaat tttcgaagcc ccagggtgaa gctgccaaac tgaggcgggc 1140
 caaaccatat gggaaattct tattagactt tcctatccaa aatcccattg aaagccagtc 1200
 ataatt 1206

<210> 35
 <211> 1284
 <212> DNA
 <213> Rupestris stem pitting associated virus

<400> 35
 attaacccaa atggtaagat ttccgccttg tttgatataa ccaatgagca cataaggcat 60
 gttgagaaga tcggcaatgg cctcagagc ataaaagtag atgagttgag gaaggtaag 120
 cgatccgccc ttgatcttct ttcaatgaat ggggccaaaa taacctattt tccaaacttt 180
 gagcgggctg aaaagttgca aggggtgctt ctagggggccc taactggtgt cataagtgat 240
 gaaaagttca gtgatgcaaa accctggctt tctggtatat caactgcgga tataaagcca 300
 agagagctaa ctgtcgtgct tggcactttt ggggctggaa agagtttctt gtataagagt 360
 ttcatagaaga gatctgaggg aaaatttgta acttttggtt cccctagacg agccttgga 420
 aattcaatca aaaatgatct tgaaatggat gatggctgca aagttgcaa agcaggcaaa 480
 tcaagaagg aagggtggga tgtagtgacc tttgaagttt tccttagaaa agtttctggt 540
 ttgaaagctg gtcattgtgt gatttttgat gaggttcagt tgtttcccc tggatacatc 600
 gatctgtgtt tacttgtcat acgaagtgat gctttcattt cacttgctgg tgatccatgc 660
 cagagcacat atgattcaca gaaggatcga gcaatttttg gagctgagca gagtgcata 720
 ctcagactgc ttgaaggaaa gacatatagg tacaacatag aaagcagacg ttttgtgaac 780
 ccaatgtttg aatctagact accatgtcac ttcaaaaagg gttcaatgac tgcagccttt 840
 gctgattatg caatcttcca caatatgcat gacttcctcc tggcgaggtc aaaaggcccc 900

| | | | | | | |
|------------|------------|-------------|------------|------------|------------|------|
| ttggatgctg | ttctagtttc | cagttttgag | gagaagaaaa | tagtccaatc | ctactttggg | 960 |
| atgaagcaac | tcaactctac | atttggtgaa | tcaactgggt | tgaacttcaa | aaatggagga | 1020 |
| attctcatat | cacatgactc | ctttcatact | gacgatcgac | ggtgggttac | tgctttatct | 1080 |
| cgattcagcc | ataatttgga | tttgggtgaac | atcacaggtc | ttgaggggtg | aaagttttct | 1140 |
| ctcacatttt | gctggtaaac | ccctttacca | ctttttgacg | gcttaaaagt | ggagagaatg | 1200 |
| tcatacgaga | cctgcttcag | gtgagcctaa | cttcttttag | gggttcaatg | tcagcattgg | 1260 |
| aaaaaaatgg | aaggggttag | agaa | | | | 1284 |

<210> 36

<211> 1402

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 36

| | | | | | | |
|------------|------------|-------------|-------------|------------|------------|------|
| catttttaaa | atttaatcca | gtcgactcac | caaagtgtgag | cgtaagctgt | ttcatcccaa | 60 |
| agtaggactg | gactattttc | ttctcctcaa | aactagaaac | cagaatggca | tccaaaggac | 120 |
| cttttgacct | tgccaggagg | aaatcatgca | tattgtggaa | aatggcataa | tcagcaaagg | 180 |
| cagcagtcac | tgtacccttt | ttgaagtgaac | atggcagtcg | agattcaaac | attgggttca | 240 |
| caaactcttc | gctttctatg | ttgtacctat | acgtcttgcc | ttcaagtatt | ttgagtatgt | 300 |
| cactctgctc | agcgcccaaa | atcgcccgat | ctttttgtga | gtcatatgtg | ctctgacatg | 360 |
| ggtcaccagc | aagtgaatg | aaagcatcac | tacgtataat | aagcaaacat | agatcgatgt | 420 |
| atccaggggg | aaacaactgg | acctcatcga | aaattacaca | gtgaccagct | tttagacctg | 480 |
| caacttttct | aaggaagact | tcaaaagtca | caacatccca | tccttccttc | tttgacctgc | 540 |
| ctgctttggc | aactttgcag | ctatcatcca | tttcaagatc | atttttgatt | gaattcgcta | 600 |
| gagcccgtct | gggggaaaca | aaagttacga | atttaccctc | agatcttttc | ataaagctct | 660 |
| tgtacaaaaa | gctttttccg | gctccaaatg | tgccaagcac | aacagttagc | tcctcggct | 720 |
| taatgtcagt | agttgatata | ccagaaagcc | agggctttgc | atcactgaac | ttctcatcac | 780 |
| ttatgacacc | agttaggcct | cctagcagac | acccttgcaa | cttttcagcc | cgctcaaaac | 840 |
| ttgggaagta | ggttaccttg | gacccattaa | ttgaaagaag | atcaagggcg | gatcgcttga | 900 |
| cctttcgcaa | ttcatctact | ttaatgctct | gagggccatt | acctatcttt | tcaacatgcc | 960 |
| ttatgtgctc | attagttatg | tcaaacagag | cggaaaactt | gccatgtgga | ttaatcacct | 1020 |
| caatttcccc | atttatgtca | cacttagcgc | aaatgtcaaa | agcctcaaag | gcttcagcta | 1080 |
| agttacatca | tgttgagcct | cccccttggc | aaagctcctc | aaaaatgtgg | ttagtgttag | 1140 |
| gcctgcacaa | taattaacac | atcaacttca | ccctgccaat | gctgaacaat | actgttatca | 1200 |
| tgcaaccatc | catggggcac | atgggttgaa | ttgattgatt | taaggcaaaa | atccccacag | 1260 |
| ggggcatccc | cttccccaat | ttccactgat | tcatactctg | gcgttatcat | atcaacccaa | 1320 |
| tgtgtcaaat | acaaataatg | caatctctca | tctccgataa | catttcccc | attttttaaa | 1380 |
| aatgggtggg | tgaaaattgg | aa | | | | 1402 |

<210> 37

<211> 1236

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 37

| | | | | | | |
|-------------|------------|------------|------------|------------|-------------|-----|
| gtgggtttttg | caacaacagg | cccaggtcta | tctaaggttt | tggaatgcc | tcgaagcaag | 60 |
| aagcaatcta | ttctggttct | tgaggagacc | ctatccatag | aaacggacta | tggcccaaaa | 120 |
| gttctgggat | cttttggaag | tttcaaaggg | gatttcaaca | ttaaaaaat | ggaagaaagt | 180 |
| tccatctttg | taataacata | caaggcccca | gttagatcta | ctggcaagtt | gagggccac | 240 |
| caatcagaat | gctcattttc | tggaaccaag | gaggtattgc | tggttggtca | gattgaggca | 300 |
| tgtgctgatt | atgatattga | tgatttcaat | actttctttg | tacctggtga | tggttaattgc | 360 |

| | | | | | | |
|------------|-------------|-------------|------------|------------|------------|------|
| ttttggcatt | cagttgggtt | cttactcagt | actgacggac | ttgctttgaa | ggccggcatt | 420 |
| cggtctttcg | tggagagtga | acgcctgggtg | agtccagatc | tttcagcccc | aaccatttct | 480 |
| aaacaactgg | gggaaaatgc | ttatgccgag | aatgagatga | ttgcattatt | ttgtattcga | 540 |
| caccatgtga | ggctgatagt | gattacgcc | gagtatgaag | tcagttggaa | atttggggaa | 600 |
| ggtgaatggc | ccctgtgcgg | aattctttgc | cttaaatcaa | atcacttcca | accatgtgcc | 660 |
| ccattgaatg | gttgcgatgat | tacagctatt | gcttcagcac | ttggtaggcg | tgaagttgat | 720 |
| gtgcttaatt | atctgtgcag | gcctagcact | aaccacattt | ttgaggagct | ttgccaaagg | 780 |
| ggaggcctca | acatgatgta | cttagctgaa | gcctttgagg | cttttgacat | ttgcgctaag | 840 |
| tgtgacataa | atggggaaat | tgaggtgatt | aatccacatg | gcaagttttc | cgctctgttt | 900 |
| gacataacta | atgagcacat | aaggcatggt | gaaaagatag | gtaatggccc | tcagagcatt | 960 |
| aaagtagatg | aattgcgaaa | ggtcaagcga | tctgcccttg | atcttctttc | aattaatggg | 1020 |
| tccaaggtaa | cctacttccc | aagttttgag | cgggctgaaa | agttgcaagg | gtgtctgcta | 1080 |
| ggaggcctaa | ctggtgtcat | aagtgtgag | aaagtcagtg | atgcaaagcc | ctgctttttg | 1140 |
| gtatatcaac | tactgacatt | aagccgagg | agctaactgt | tgtgctttgg | cacatttgga | 1200 |
| gcccggaaaa | agccttttgt | accaagagct | ttattg | | | 1236 |

<210> 38

<211> 1296

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 38

| | | | | | | |
|------------|------------|------------|-------------|------------|-------------|------|
| gtctaactgg | cgttataagt | gatgagaaat | tcagtgatgc | aaaaccttgg | ctttctggta | 60 |
| tatctactac | agatattaag | ccaagggaat | taactgttgt | gcttggtaca | tttggggctg | 120 |
| ggaagagttt | cttgtacaag | agtttcatga | aaaggctctga | gggtaaattc | gtaacctttg | 180 |
| tttctcccag | acgtgcttta | gcaaattcaa | tcaaaaatga | tcttgaaatg | gatgatagct | 240 |
| gcaaagtgtc | caaagcaggt | aggtaaaaga | aggaaggggtg | ggatgtagta | acttttgagg | 300 |
| tcttctcag | aaaagttgca | ggattgaagg | ctggccactg | tgtgattttt | gatgagggtcc | 360 |
| agttgtttcc | tcctggatag | atcgatctat | gcttgcttat | tatacgtagt | gatgctttca | 420 |
| tttcaactgc | cggtgatcca | tgtcaaagca | catatgattc | gcaaaaggat | cgggcaattt | 480 |
| tgggcgctga | gcagagtgc | atacttagaa | tgcttgagg | caaaacgtat | aggtataaca | 540 |
| tagaaagcag | gaggtttgtg | aaccatgt | tcgaatcaag | actgccatgt | cacttcaaaa | 600 |
| agggttcgat | gactgccgct | ttcgctgatt | atgcaatcct | ccataatatg | catgactttc | 660 |
| tcctggcgag | gtcaaaagg | cctttggatg | ccgttttgg | ttccagtttt | gaggagaaaa | 720 |
| agatagtcca | gtcctacttt | ggaatgaaac | agctcacact | cacatttggt | gaatcaactg | 780 |
| ggttgaattt | caaaaatggg | ggaattctca | tatcacatga | ttcctttcac | acagatgatc | 840 |
| ggcgggtggc | tactgcttta | tctcgcttca | gccacaattt | ggatttggtg | aacattacag | 900 |
| gtctgaggtg | gaaagtttcc | tctcgcaact | tgctggcaaa | cccctctacc | attttttaac | 960 |
| agccaaaagt | ggggagaatg | tcatacgaga | tttgctccca | ggtgagccta | acttcttcag | 1020 |
| tggctttaac | gttagcattg | gaaagaatga | aggtgttagg | gaggagaagt | tatgtggtga | 1080 |
| cccatgggta | aaagtcatgc | ttttcctggg | tcaagatgag | gattgtgaag | ttgaagagat | 1140 |
| ggagtcagag | tgctcaaag | aagaatgggt | taaaaccac | attcccctga | gtaatctgga | 1200 |
| gtcaaccagg | gctaggtggg | tgggtaaaa | ggccttgaaa | gagtatcggg | aggtgcgttg | 1260 |
| tggttatgaa | atgactcaac | aattctttga | tgacat | | | 1296 |

<210> 39

<211> 907

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 39

| | | | | | | |
|-------------|------------|------------|------------|-------------|-------------|-----|
| atgttcacca | aatccaaatt | atggctgaag | cgagataaag | cagtaagcca | ccgccgatca | 60 |
| tctgtgtgaa | aggaatcatg | tgatatgaga | attcccccat | ttttgaaatt | caaccagtt | 120 |
| gattcaccaa | atgtgagtgt | gagctgtttc | attccaaagt | aggactggac | tatctttttc | 180 |
| tcctcaaaac | tggaaaccaa | aacggcatcc | aaaggacctt | ttgacctcgc | caggagaaaag | 240 |
| tcatgcatat | tatggaagat | tgcataatca | gcgaaagcgg | cagtcattga | gccctttttg | 300 |
| aattgacatg | gcagtcctga | ttcgaacatt | ggattcacaa | acctcctgct | ttcaatgtta | 360 |
| tacctatacg | tcttgccctc | aagcagtcta | agtatgtcac | tctgctcagc | gccccaaaatt | 420 |
| gcccgatcct | tttgcgaaac | atatgtgctt | tgacatggat | caccggcaag | tgaaatgaaa | 480 |
| gcatcactac | gtataataag | caagcataga | tcgatgtatc | caggaggaaa | caactggacc | 540 |
| tcatcgaaaa | tcacacagtg | gccagccttc | aatcctgcaa | cttttctgag | gaaaacctca | 600 |
| aaagttaacta | catcccaccc | ttccttcttt | gacctacctg | cttttagcaac | tttgcagcta | 660 |
| tcatccattt | caagatcatt | tttgattgaa | tttgctaaag | cacgtctggg | agaaacaaaag | 720 |
| gttacgaatt | tacctcaga | ccttttcatg | aaactcttgt | acaagaaact | cttcccagcc | 780 |
| ccaaatgtac | caagcacgac | agtcaactcc | cttggtctaa | tatcagtagt | agatatacca | 840 |
| gaaagccaag | gttttgcac | actgaacttc | tcatcactta | taacgccagt | tagggccccct | 900 |
| agcaaac | | | | | | 907 |

<210> 40

<211> 1232

<212> DNA

<213> Rupestris stem pitting associated virus

<400> 40

| | | | | | | |
|-------------|------------|------------|------------|------------|------------|------|
| agaatgctta | tgctgagaat | gagatgattg | cattattttg | catccggcac | catgtaaggc | 60 |
| ttatagtaat | aacaccggaa | tatgaagtta | gttggaatt | tggggaaagt | gagtggcccc | 120 |
| tatgtggaat | tctttgcctg | aggtccaatc | acttccaacc | atgcgccccg | ctgaatggtt | 180 |
| gcatgatcac | ggctattgct | tcagcacttg | ggaggcgtga | ggttgatgtg | ttaaattatc | 240 |
| tgtgtaggcc | tagcactaat | cacatctttg | aggagctgtg | ccagggcgga | gggcttaata | 300 |
| tgatgtactt | ggctgaagct | tttgaggcct | ttgacatttg | tgcaaagtgc | gacataaatg | 360 |
| gggaaattga | ggtcattaac | ccaaatggca | agatttccgc | cttgtttgat | ataactaatg | 420 |
| agcacataag | gcatgttgag | aagatcagca | atggccctca | gagcataaaa | atagatgagt | 480 |
| tgaggaaggt | taagcgatcc | cgccttgacc | ttctttcaat | gaatgggtcc | aaaataacct | 540 |
| atthttccaaa | ctttgagcgg | gctgaaaagt | tgcaagggtg | cttgctagag | ggcctgactg | 600 |
| gtgtcataag | tgatgaaaag | ttcagtgatg | caaaaccttg | gctttctggt | atatcaactg | 660 |
| cggatattaa | gccaagagag | ctaactgtcg | tgcttggcac | atttggtgct | ggaaagagtt | 720 |
| tcttgataaa | gagtttcatg | aagagatctg | aaggaaaatt | tgtaactttt | gtttccccta | 780 |
| ggcgagcttt | ggccaattcg | atcaagaatg | atcttgaaat | ggatgatggc | tgcaaagtgt | 840 |
| ccaaagcagg | caagtcaaag | aaggaagggt | gggatgtggt | aacatttgag | gttttcctta | 900 |
| gaaaagtttc | tggtttgaag | gctggtcatt | gtgtgatttt | cgatgaggtt | cagttgtttc | 960 |
| cccctggata | tatcgatcta | tgtttacttg | tcatacgcag | tgatgctttt | atttcacttg | 1020 |
| ccggtgatcc | atgccagagc | acatatgatt | cacaaaagga | tcgggcaatt | ttgggagctg | 1080 |
| agcagagtga | catactcaga | ttgcttgaag | gaaagacgta | taggtacaac | atagaaagca | 1140 |
| gacgttttgt | gaacccaatg | tttgaattta | gactaccatg | tcacttcaaa | aaagggttca | 1200 |
| atgactgctg | cctttgctga | ttatgcaatc | tt | | | 1232 |

<210> 41

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 41

gcttcagcac ttggaaggcg

20

<210> 42

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 42

cacacagtgg ccagcct

17

<210> 43

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 43

ggaggtgcgt tgtggttatg

20

<210> 44

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 44

ccctggcact gcacaccc

18

<210> 45

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 45
ggaggtgacc acattacg 18

<210> 46
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 46
catcacgact tgtcacaaac c 21

<210> 47
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 47
tgggcctcca cttcttc 17

<210> 48
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 48
ggggttgcct gaagat 16

<210> 49
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 49
acacctgctg tgaaagc 17

<210> 50
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 50
ggccaagggt cagtttg

17

<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 51
gatgaggtcc agttgtttcc

20

<210> 52
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 52
atccaaagga ccttttgacc

20

<210> 53
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 53
cttgatgagt acttgtc

17

<210> 54
<211> 17
<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic based on Rupestris stem pitting
associated virus

<400> 54

gcaaggattt ggatggc

17

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